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ABSTRACT

This paper is an account of the theoretical and practical underpinnings of the Decision-Proposal Modification Coding System (DPM), which allows researchers to study more accurately the many aspects of group decision making in organizations. Following an introduction that reviews and supports arguments for process-oriented research on decision making, several conclusions of past research on decision making are summarized. Other sections of the report contain discussions of the following topics: (1) the situation and content of organizational decision making, (2) the use of role theory to support the perspective for creating the coding system, (3) the sequences in the process of negotiating decisions, (4) a multilevel model of decision making, (5) the eight assumptions underlying development of the DPM, and (6) the criteria for categorizing organizational communication with the coding system. The codes and their definitions are attached. (RL)

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The Development of a Coding System for the Assessment of Organizational Decision-Making as Negotiation

A Paper Presented At the Annual International Communication Association Convention, Acapulco Mexico, May 1980

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Introduction

Decision-making is an activity recognized as an increasingly important activity in highly organized, bureaucratic, and technologically oriented societies. The ability to comprehend not only the implications of decisions, but how those decisions are made, is one means of improving the quality of organizational and societal life. A more complete understanding of decision-making would make possible the intentional alteration of the process, in order to improve the quality of decisions which, on a daily basis, give form and substance to our organizations and society. To accomplish this end, theoretical and pragmatic knowledge claims must be shown to be complimentarily useful, and this can be best done through a grounded-theory approach to decision-making.

I am specifically concerned with the exploration of the nature of decision-making as a multi-dimensional communicative activity within the organizational context. To accomplish this end, it is necessary to develop a verbal-interactive coding system which focuses on the evolutionary process of interaction characterized by organizational small-group activity. The foundation for this approach is clearly laid out in the literature by Bales & Strodtbeck [1], Crowell & Schiedel [2], Schiedel & Crowell [3], and Fisher [4]. This research has demonstrated the need, plausibility, and utility of coding systems which allow the researcher to more accurately study aspects of the decision process through a focus on verbal and nonverbal interaction. These studies have illustrated the complex nature of decision-making within any context, and have more specifically demonstrated interactive phases of organizational group-life.

The complexity of decision-making phases [5], and the evidence of the groups' practical ability to reduce the amount of "necessary" information or facts to be dealt with at a given time, suggests an as of yet unexplained process by which the group ascertains which data are unacceptable for inclusion in successively more specific sub-phases of interaction resulting in group consensus. This process may be the result of observed conversational jumps and spurts, the function of which is to propose task solutions. New solutions result from the establishment of new relationships between "facts" under discussion and, at the same time, allow the group the option of revising or rejecting existing decision-proposals. This ascertainment process allows the group to project possible consequences of decisions before consensus is reached.

It may be argued that groups are able to project consequences in much the same way in which Fisher conceived of decision-proposals being projected, through thematic identification. Decision projections produced by conversational jumps and spurts are recognized for what they are, and as distinguishable from other projections, because of the unifying thought or concept which identifies the thrust or orientation of each decision-proposal. This is not fully explored in many aspects of decision-making research, but methodological approaches and theoretical arguments support the implication that a focus on thematic evolution of decision-proposals would result in a representative description of the functional nature of decision-making interaction.

Phases constituting decision-making were viewed by Fisher & Hawes [6], as a continuous process, rather than as resulting from the interaction of discrete categories. While warning that the discovery

of interphase transitions offers possible difficulties due to gradually emerent patterns of observable change, Fisher & Hawes claimed that patterns of decision-making would develop into recognizable phases of task progression. This argument was consistent with Fisher's earlier work on the emergent nature of identifiable aspects of decision-making, and represents a central concern to the development of this methodological tool.

The application of a coding system reflective of group interaction and group process allows a researcher to identify various phases, levels, or transitional states which occur during group interaction. Fisher & Hawes argued that these "process states" are more easily identifiable and explained when viewed in relation to the existent relationships among group members. The identification of relationships is facilitated if, as Fisher & Hawes suggested, the overall context and situation within which a group operates is seen as constitutive of a major aspect of group existence and function. Inclusive in the consideration of context and situation is the consideration of the relationships among groups, as systems, to relationships among people. This was a necessary step for the accurate description of interactional decision-making patterns. To accomplish this they suggested that one include a consideration of the meaning of utterances as generated by the group and as identifiable by their functional properties. Ellis & Fisher [7] analyzed the functional nature of conflict during prolonged group interaction. From a General Systems Theory perspective, interaction was again viewed as a process which was "inherently fluctuating because it remains interdependant with, and influenced by, other phenomena."

The recognition of the need to more completely explicate the spectrum of phenomenon influencing decision-making is evident in Fisher, Drecksel, & Werbel's [8] work on the coding of ongoing human communication. In a continued systemic approach, Fisher et al. incorporated principles of information theory in the presentation of a coding system designed to uncover how information, contained in behavioral sequences, limited group members' response options, thereby structuring individuals into an identifiable system. The Social Information Processing Analysis (SIPA) category system, and subsequent suggestions as to how the analysis of interaction should proceed, reflected a multi-dimensional orientation which considered the influence of: 1)source of information; 2) time parameters; 3) information assembly rules; and 4)equivocality reduction upon decision-making.

Although the particular orientation of SIPA was not conducive for use in the current research tool, the underlying assumption that an "analysis of sequences is absolutely critical for an analytical system based on functions of information" [9] is highly relevant. It is relevant because this coding system is concerned with generating descriptions of the nature of the interactive sequences representative of group decision-making. The theoretical underpinnings of SIPA and their relationship to interactive analyses of decision-making will be explored more fully in the following section. At this point, it is sufficient to argue that the preceding line of research, culminating in the work of Fisher et al., has accounted for many of the criticisms of earlier decision-making research. In so doing, researchers have reached a position at which a rich data base from which grounded-theory may be generated, is now accumulating. The growth of that data base should not be construed to mean that all research problems have been solved. In the following section I shall summarize what has

been accomplished and identify areas in which issues remain unresolved.

Summary

The preceding section reviews and supports arguments for process oriented decision-making research. Beginning with Bales' broad categorization of small group members' behaviors, the development of decision-making research into a more narrowly focused, heuristically rich area of inquiry has been traced. Strengths and weaknesses of relevant research has been considered in terms of this orientation and, as a result, the following conclusions may be drawn:

1. Decision-making and idea development within groups and organizations are evolutionary in nature, characterized by erractic jumps and spurts in topic and time orientation.
2. Decision-making is comprised of phases and subphases of interaction.
3. Phases and subphases are interrelated and functionally illustrate the evolutionary, multi-dimensionality of decision-making.
4. The utility of coding systems oriented toward sequential interaction has been demonstrated.
5. Both task and socio-emotional utternaces are essential data, all group utterances therefore constitute data for analysis.
6. The influences of situation, time, and members' relationships must be considered during analysis of decision-making.
7. Naturally ongoing groups are the most accurate and relevant sources for representative decision-making data.
8. Integral to the conceptualization and comprehension of decision-making is the "meaning" of utterances from the members' perspective.
9. A systemic approach, based in General Systems Theory, is a viable concept from which to analyze simultaneously functioning dimensions of decision-making within groups.
10. Sequential analysis of interaction, oriented toward the thematic evolution of ideas and decisions (i.e., possible task solutions), is a promising means by which to explore and describe the nature of decision-making.

Situation and Content

Grounded-theorists have recognized the importance of interact sequences as the basis of decision-making research because those sequences are functionally meaningful to both observer and those involved in the decision-making process. Accounting for socially generated meaning from the actors' standpoint is a natural extension of accounting for utterances' functions from the observers perspective during group problem-solving. This latter perspective offers suggestions as to how language accomplishes human purposes, the former offers cues into personal and social significances of accomplished acts. Consideration of meaning is a necessary, but not exceedingly difficult task, if the situation and context helps the researcher to understand the group through the assessment of how the group actually processes information which is, in part, due to the significance placed upon information by group members.

Natensen [10] defines situation as the setting within which interaction occurs. Situation functions as a subset of context, in that the view the actor has of "situation" results in real consequences for that actor and for others with whom s/he interacts. Blumer [11] states that the world of reality exists only in human experience and appears only in the form in which humans "see" that world. W.I. Thoman agreed, arguing that one has to understand the definition (of setting) means action, and that interpreting the world is a prime mode of acting within it. Context is the perceived relationships (relations, constituting "group-life" or "world") among different orders of referent points to which objects refer, which may be interpreted by group members as meaningful within a particular situation [13]. Context refers to the nature of the physical world. If one object acts

as a point of reference for another, then in the relationship of coupling (those objects), either member of the pair is merely one object within an order which includes other objects pertaining to the same realm [14].

Context is a relative phenomenon, in which the relationships among objects symbolic of physical nature may be unique to the group under observation. In order to understand group process, one must be aware, and be able, to account for the influences of relationships among objects. Situation may be primarily a problem of the actor, but understanding the social world means understanding the way in which people define their situations within particular contexts [15].

The issue of people defining situations differently may be legitimately raised as a counfounding element during the consideration of context and situation during decision-making. Responding to this issue, Natensen wrote:

> "that I may define the "same" situation in a radically different manner than does my fellow man leads philosophically to the problem of reality . . . men living in the paramount reality of every-day life are emeshed in situations as they define them in the context of their lives." (xxxvii)

In other words, group members naturally and implicitly assume the validity of their reality and act accordingly. How group members assume similar realities, and are capable of interacting, is discussed more fully below, but the comprehension of group situation and context allows a researcher to identify the active reality of a group, share in it, and attend to the social knowledge utilized within utterances; the result of this attention is the ability to functionally interpret meaning or significance of those utterances during problem solving.

In the following pages, I will first explore the process by which people identify contextual reality memberships and then focus on the functional aspects of meaning which allow group members to negotiate between, and within, contexts as a normal part of social interaction.

The process of role enactment through proper role and contextual identification becomes meaningful to decision-making research because roles are a central element in organizational maintenance and evolution of task oriented groups. Identification of the context is tied to understanding how members perceive the meaning of others members' utterances. The relevance of contextual identification for many research projects is not in its explication, but in the recognition that the development of any analytical system must take into account the meaning of utterances as seen by group members [17]. If an analytical system achieves this end, researchers may accurately apply it in tracing the functions of utterances for the group engaging in a decision-making process.

The importance of this position has been supported by Schutz' [18] argument that members' utterances take on meaning as determined by group members' frame of reference. Garfinkel [19], Hall [20], and Hawes [21] also support this conceptualization of knowledge and meaning as socially determined. Meaning, as defined by these authors, was the human interpretive evaluation and reaction to events and reality. Meaning was, and is, interaction and not abstractions of interaction; it is by the process of interacting that meaning comes into being and continually changes.

These arguments suggest that it is social members' functioning within daily task groups necessary for social survival that gives meaning to their acts and lives. As such, it is the everyday

"normal" communicative experience which constitutes the reality base from which group members operate. It provides members with a sense of identification, and a sense of belonging within a particular social unit, albeit a sub-culture, group, or organization. And we, as social actors within similar groups or organizations, speaking the same language, and, perhaps, sharing similar experiences, can identify or empathize with this sense of belonging and the sense of "meaning" as generated by the group during its deliberations.

In order to explore functional aspects of reality identification we have to consider the nature of language as used by group members. Searle [22] and Austin [23] have argued that language, the observable behavior of role enactment, is social knowledge at work and is the phenomenon which accomplishes acts. This is plausible if, as according to Schutz, an act is a self-designating accomplished action. Action was itself defined as human conduct self-consciously projected by the actor and, as such, was either overt or covert. Action differs from act in that in order for action to occur, a "voluntative feat is involved . . . which establishes the action as purposive." [24] Included within the definition and anlysis of purposive action and accomplished acts are the choices interactants make (i.e., in not acting or in acting covertly--as in with a hidden agenda). The accomplishment of a task solution may be defined as an act resulting from the action of human talk. Analysis of the functional power of talk in accomplishing a task accounts for the significance of meaning found in the language-in-use of group members. The nature of group memberships is such that their common use of language and "generally" common view of context and situation defines group membership and the ability to interpret group interaction.

Hawes and Smith [25] argue that conflict and negotiation are a normal part of interaction occuring within specified situations and contexts, and should be so treated. Decision-making and negotiation are in a relationship in which each assists in the accomplishment of the other. The most basic definition of negotiation supports this view; negotiation is a process by which people surmount, cross, transact, accomplish, agree, confer, bargain, and discuss matters of mutual concern. Negotiation accomplishes decision-making, and is accomplished by it; one cannot negotiate without making decisions and one cannot be involved in decision-making unless one is willing and able to negotiate certain aspects of social reality. For this reason I propose to treat decision-making as a process in which the negotiation of social reality is accomplished through utterances functionally altering how information is to be used by the group in an organizational context.

Role Theory

Further theoretical support for this negotiation perspective may be found in role-theory literature. Goffman writes extensively on role playing and maintenance of personal face within group settings. He argues that communicative behaviors which are seen as appropriate, are defined and influenced by individual self-concept, the groups' self-concept, and the behaviors of significant others observed by group members. He argues that high status members are more capable of altering group norms than lower status members, but that any change occurs within the contextual limits of the group if the group is to survive. The ability of one member, or a coalition of members to functionally alter a role, and the ability of individuals and groups to maintain face, results from a process of give-and-take which defines the significant and significance of data upon which

members operate. Determination of, and response to, acceptable behavior is a negotiated act.

Sarbin and Allen [27] write of the need to perceive the significant others' position(s), from their perspective in order to successfully play a role. Role enactment is a contractual process in which one's perceptions and metaperspectives interact with the totality of the self, and with mutually shared experiences, in order to establish 1) a common expectation of social knowledge to be utilized, 2) a range of expected behavioral responses, and 3) a range of expected consequences (i.e., interaction is established for the purposes of accomplishing acts and is successfully concluded within the accepted "normal" ranges of social conduct). Both Sarbin and Allen and Goffman suggest a process of negotiation which maintains social order and allows interactive reality to continue on its relatively "expected" course.

A process exists because these projections constantly modify, and are modified, by role enactments influenced by exigencies within the situation, context, personality, and topic choices of small-group communities. While aspects of these modifications may be psychological in nature, their ramifications are observable through changes of meaning and intent within utterances directed toward other interactants. My concern is with the process of information sharing which functionally alters possible consequences of communicative acts. A group's fantasizing about 1) viability of sources, 2) utility of information, and 3) the consequences associated with various courses of actions is a process of negotiation by which the group decides upon the social reality within which they seek to operate.

Descriptions of decision-making, as a process of negotiating social reality, may be accomplished by focusing on the thematic evolution of decision proposals during group interaction. Research indicates that decision-making focuses on the simultaneous development of a variety of task solutions. Proposed task solutions are identifiable by their thematic intent which is the perceived meaningfulness of implied consequences of group action. By tracing thematic development during decision-making, a researcher is able to explore and describe possible influences of time, group treatment of information, and utilization of that information during decision-making. It is possible to characterize and deal with information in terms of the relationships it establishes between group existence, group success, relationships between group members, context, situation, and decision proposals. That which allows the identification of decision proposals, and their significance, is the meaning of language generated by the group and interpreted by the researcher as functional members of similar language communities.

From this naturalistic perspective, each interact, each statement about the nature of the world, is seen as the negotiated means by which acts of decision-making are accomplished. The explication of this negotiation is one means of describing the levels of interaction involved in decision-making. This concept of decision-making suggests that it is from a socially-learned process of selective attention, perception, retention, and synthesis that one negotiates through an overwhelming number of stimuli in deciding what shall be perceived and how it will be treated. It also suggests that utterances are influenced by relationships among life elements, the details of which are not always explicitly known by individuals within groups. Yet these relationships are by necessity evaluated

by the individual, and behavioral extensions of those relationships are adopted, adapted, or rejected within the group's contextual reality which has been negotiated for that time and place. This is a constant evaluative process within which social actors hold some points constant for reference puposes (i.e., external context of culture, society, or institutions while processing new information which fits into existing relational patterns). This manner of processing data about societal relationships grounds us in our social realities. By so doing, we are able to take for granted the reality from which groups emerge and from which members and observers operate in analyzing group situations; it is not necessary for members or observers to build order out of chaos with each interaction. However, observers have a duty to describe and explain that reality of shared social knowledge which results in accomplished acts.

Sequential Negotiation of Decisions

It has been argued that decision-making, as the negotiation of social reality, is a viable concept from which to analyze group interaction. In order to continue with the analysis it is necessary to discuss the nature of decision-making as a sequential process. This conceptualization of decision-making (see Figure 1) illustrates the sequences of negotiation concerned with "agreement-points" during the decision-making process. The term "sequence" refers to the various treatments information is given (i.e., are data to be utilized in establishing policy and procedures or used as a conclusion which then becomes data for a more complex decision) by group members. Each "sequence" functions to accomplish decision-making due to negotiated points of agreement essential for the continuation of mutually comprehensible interaction. Agreement points essentially accomplish

Figure 1

Multi-Leveled Model of Decision Making

Dimension 1	Dimension 3
Sequence 5	Adoption of decision proposals and subsequent minor modifications: lessening of creative tension resulting from consensus and recognition of decision.
Sequence 4	Negotiation of competing "finalized" decision-proposals (may occur simultaneously with level 3): the negotiation of possible episodic units (from levels 1-2-3) in form of decision-proposals.
Sequence 3	Consolidation of negotiated agreement points in which use of information results in summaries positing relational aspects of lower level data in terms of emergent thematic decision-proposals and their modification.
Sequence 2	Negotiated use of data: posits relationships among data, influences how "facts" and aspects of task and group reality are to be perceived by group members.
Sequence 1	Negotiation of what constitutes data (i.e., agreement as to the determination of facts-opinion-conjecture) for group utilization in projecting a data base from which problem-solving may be accomplished.

Base Level: Assumed group reality based on mutually held tacit social knowledge.

Dimension 2

Key: Dimension 1 - Functional sequences of utterances relating to proposed task solutions, across time.

Dimension 2 - This is a history time line which indicates a similar knowledge base of members' perceptions during meetings.

Dimension 3 - Simultaneous functionality of utterances on more than one sequence includes jumping between any number of sequences, with no prior order, by any number of group members.

similar functions on each level; they function as thematic cues from which participants negotiate and acknowledge the functional aspects of utterances. Therefore, agreement points are useful: 1) to identify the significance of information to group members, and 2) to trace the development of decision proposals within the group. Each adaptation, decision, or negotiation signifies a point of agreement which contributes to a shared evolutionary development of a theme conceptualized as a possible response to group task.

The first sequence of decision-making is concerned with the negotiation of that which constitutes data for use in future decisions. Discussions characteristic of this sequence influence which facts, opinions, information, conjectures, and variations thereof are applicable for solving problems posed by group tasks.

Sequence two negotiates the use of those data and establishes initial relationships among data for use in the overall decision-making process. Once facts and opinions have been generally agreed upon, sequence two focuses on how they relate to one another and the tasks under discussion. Members may acquiesce in accepting another's perceptions and use of facts, or they may be unwilling to accept the potential "solutional" implications of data relationships, and attempt to move back to sequence one type interactions. The successful negotiation of this sequence (i.e., coming to agreement on any usage of data within the group context) is open to re-examination at any time by group members.

Sequence three's concern is the group's consolidation of the negotiated usage of data from sequence two. Utterances from this sequence are typically characterized by summaries of existing relationships among data, illustrating a movement toward the establishment of broader relational themes between data, task solutions, and

related ideas. These ideas may be perceived and treated as emergent decision-proposals. Sequences 1,2, and 3, may be seen as constituting mini-episodes; they yield identifiable thematic intents or orientations by which information or utterances are classified and employed by group members during the negotiation of decision-proposals.

Sequence four reflects the negotiation of competing decision proposals influenced by variations in members' perceptions of different proposals and relational uses of data. This sequence, which may occur simultaneously with sequence three, is functionally influenced by the nature of the group procedures (i.e., more formal groups might tend to separate these sequences while a less structured group might deal with decision proposals in a more conversational manner).

Sequence five is characteristic of the adoption of one or many decision proposals which are specifically related to solution of group task. Slight modifications of decision-proposals might occur, but thematic intent of decision proposals remain unchanged, with slight modifications of implementation possible.

As this discussion suggests, these sequences are neither invariant, segregated by time periods, nor discrete. Any sequence or number of sequences may be called into play simultaneously or at any time. The manner in which decision proposals are accomplished by negotiation is the focus of this research. As in earlier works, a decision proposal is defined as an utterance or series of utterances, the theme of which offers a solution to the task upon which the group is focused. The above model and the explanation of the nature of "agreement-points" which follows completes the theoretical basis from which a coding system may be developed and research questions posited.

In the sequential model proposed a systemic perpective is employed. Initial sequences are seen as contributory to, and constitutive of, aspects of later sequences within the framework of particular conversational themes. Themes function as conversational attempts by group members to come to a point of task resolution, albeit consensus, resolve disagreement, or (widespread) disinterest. Groups may engage in numerous sequential interactive repetitions to solve simple tasks; it is plausible that the interactive processes of sequences of "shorter" duration are similar to those processes found within and between sequences regardless of length of duration. This argument finds support in the usually habitual manner in which people interact while forming and maintaining relationships within groups. This "habitualness" is intrinsically tied to role enactment and role positions within the group, given a particular individual's position on a particular issue or range of issues, people will react in a somewhat consistant manner while negotiating with other actors in the formulation of both group reality and particularly thematic resolutions of 'fact' upon which the group membership operates. Resolutions of 'fact' include relational and task utterances. This is not to suggest, however, that the patterns of interaction within all sequences is necessarily the same. That still reamins to be explored.

Within this systemic perspective at least two types of agreement-points may be said to be operative: regulative agreement-points (R.A.P.) and thematic agreement-points (T.A.P.). At this point in the discussion it should be clearly stated that agreement-point is a comprehensive term which refers to expressions of agreement, disagreement, and disinterest. The more consise term agreement-point is utilized for clarity and to lessen possible confusion during the

following discussion. This should not be construed to suggest the absence of other behavioral acts with which the study of decision-making, as negotiation, must be concerned.

Regulative agreement-points, which are not of concern to the coding system, are points of agreement which occur when verbal and nonverbal cues pass between speakers and hearers functionally allowing conversation to continue at a "normal" pace. These points of agreement tell conversational participants simply that their conversational partner is attending, to some degree, to the interactive sequence and that the sequence should be continued or ended. Regulative agreement-points help a speaker determine the permissibility of continued talk, these points attend to the pacing of interaction and provide indications of degree of attentiveness, they do not attend to the content of utterances. R.A.P.'s are conceived of as functionally removed from altering, confirming, or challenging either the explicit content of utterances or the assumed knowlege or reality of the group implied within those utterances. However, observation seems to suggest that R.A.P. and T.A.P. may functionally be a part of the same utterances' intent during the group process. The concern of this methodological tool is with those utterance-functions which resolve issues of content.

In keeping with their habitually frequent utilization as a regulative force assisting conversational accomplishment, R.A.P. are often employed without conscious notice. This is due, in part, to the habitual manner in which people converse and, as Garfinkel has suggested, keeps the world running smoothly without conscious attention. The major function of regulative agreement-points seems to be the facilitation of conversation, it is one manner in which participants make conversation flow smoothly.

In contrast to regulative agreement-points are topical agreement-points. Topical agreement-points are of use to interactants, and researchers, because they functionally deal with utterances' content and/or intent. T.A.P.s functionally imply, or state, confirmation, disconfirmation, or disinterest of the idea(s) or theme(s) of an actors' statements. That which distinguishes a topical agreement-point from a regulative one is the speaker-hearer concern with coming to a tacit or explicit agreement on the functional meaning of statements which constitute an interactive sequence, or series of sequences, as related to task solution. T.A.P.s allow a multitude of acts to be accomplished by group interaction.

Topical agreement-points are those verbal and nonverbal cues which participants tie to the content of specified themes or topics of discussion during group problem solving activities. Conceptually, T.A.P.s are points within conversations, defined partially by situation and context, which mark the boundaries of negotiated segments of conversation. T.A.P.s make it possible for groups to accomplish acts--to decide by assisting with the summation and coming to "agreement" phases of group process. In this manner, topical agreement-points indicate that utterances have, or have not;

a. been accepted as reasonable statement(s) of fact
b. accomplished constitutive establishment of group-life, situation, and/or context
c. been disconfirmed as reasonable statement(s) of fact
d. been seen as in need of immediate or delayed clarification, support, or withdrawal
e. been seen as statement(s) of general disinterest
f. these functions are neither mutually exclusive nor are they all inclusive

As in the case of R.A.P.s, topical agreement-points are also frequently constituted and successfully negotiated without the conscious notice of participants due to the habitual manner in which

information is processed during interaction. However, the complexity of the discussion and the familiarity of interactants with one another, the topic, as well as a variety of situational factors, will vary the frequency of agreement-point occurences and participants recognition of them, during an interaction. Furthermore, a series of topical agreement-points function to allow continued discussion on a single theme, or may contribute to rapid and frequent topical shifts in conversations. Topical agreement-points allow continued development of thematic solutions related to task, allowing rapid changes in topic seemingly necessary to group problem-solving.

Additionally, topical agreement-points may function to recycle utterances (for group consideration) in order to contest relational levels of content (i.e., micro-whether specific facts, ideas, or aspects thereof are "acceptable;" macro-whether the nature of group reality requires information, or the group perception of reality, to be renegotiated). Thus topical agreement-points may focus on relatively small or large areas of agreement/disagreement/disinterest involving greater or lesser amounts of role adaptation and/or informational adaptation seen as necessary by group members. The focus and summation of varied amounts of group information, as negotiated by the membership, is essential to group task resolution.

Negotiation of agreement-points is an informational give and take. In the case of "argument," intellectual or emotional disagreement, 'habitual' interaction is frequently altered to another (possibly habitual) state because actors either no longer wish to exchange information, or have shifted levels (i.e., relational versus topical and metacommunicational versus emotional) and are unable to exchange information. Negotiation overcomes disagreement on informational significance during conversation. Regardless of the type of inter-

action, group members seek areas and points of possible agreement in an attempt to facilitate, and bring a sense of closure, to task related interaction. Each agreement-point may be conceived of as an individual instance of negotiation on a continuum of interaction. As such, the study of agreement-points from a thematic perspective critical to the study of group decision-making is possible because the development of themes may be observed over relatively long periods of time. Themes develop through a process of building on, or chaining out from, series of agreement points. This building process of ideas and relationships is the decision-making process. Its nature may be studied through a focus upon the various sequences and agreement-points during which time sequences are employed as life experiences which accumulate and change the significance of previous utterances and agreements.

The present coding system is based upon a conceptual rationale of decision-making as a process within which thematic development of task solutions and the multi-sequential negotiation of agreement-points are functionally accomplished by group members' utterances. The specific purpose of the system is to identify and allow researchers to describe the nature of decision-making by focusing on those functional accomplishments of utterances during decision-making.

Functional relationships among members' utterances will have little theoretical value if the group from which data are generated is suspect. This method is oriented towards the analysis of self-generative groups occurring within natural, everyday settings. Fisher's [28] seven criteria are invaluable in eliminating analytical problems associated with research-only-groups; however, they are in need of slight modification to fit within the proposed theoretical and methodological conceptualization. This can be accomplished

without the loss of essential group features which Fisher argued are necessary for sustaining knowledge claims concerning decision-making groups. Five criteria are easily met:

1. Their goal is to achieve consensus of decisions.
2. The group's interaction is primarily verbal.
3. The group operates in a developing or emergent context.
4. The entire history of the group is known and available for study.
5. The group is not formed within a classroom situation.

One criterion not met is the availability of a written record of all the group's task performances. This is not, however, a pragmatic criterion: it is only under the most optimum conditions that an entire record of task performances of a naturally-occuring group would be available. The intent is that task and social interaction of organizational groups during task performance be available for study over a period of time. The availability of an extensive record, albeit incomplete, facilitates analysis of the interactive process, whether one is concerned with a particular task or a series of organizational tasks. There is a trade-off involved: the collection of data from self-generative groups versus the possibility of waiting for shorter-lived, perhaps less representative, organizational groups to emerge. If the period of organizational/group activity studied is fairly representative of the general mode of organized group interaction, knowlege claims will not be adversely effected.

"Successful resolution of group task" is another criterion which is inherently problematic. Many organizational groups have no single task to complete. As a group within an organization, any definition of tasks and their successful resolution is situationally and contextually tied to that group and particular organizational member-

ship. Over a period of time groups may make many "small" decisions, all of which contribute to a more comprehensive task solution required within the organization.

Development of a Decision-Proposal Modification Coding System (DPM)

Given the above conceptualization of organizational decision-making as a negotiated process, and the criteria for group choice in conducting a study, the following means of analyzing organizational small-group interaction is proposed. The DPM system follows Fisher's argument that a feasible system is one which when "used to observe interaction reveals significant characteristics of human communication" while adding to our knowlege of how communication functions. The DPM accomplishes these two tasks, and in so doing, is necessarily based upon a systemic perspective of group decision-making. The DPM is based upon these assumptions of modern systems theory, and include many assumptions upon which Fisher based the SIPA to test for information processing within an Informational Theory paradigm:[29]

1. Communication occurs in a setting and serves to organize relationships among people within that setting.

2. "A group is a system of externalized and observable communication behaviors structured by redundant sequences which serve to organize individuals into a collectivity," focusing attention on actions from people.

3. Individuals reflect and are the properties of that group system since their behavior constitutes the system under observation.

4. A group, as an ongoing interaction system, is identified by regularized, time-invariant relationships among behavioral acts, the analysis of which proceeds from the point at which component units are interrelated. Groups must be observed over time to discover "quasi-time invariant relations between behavioral acts which recur with high probability."

5. Groups are open systems, the degree of which varies among group-systems, characterized by non-equilibrium steady states. As information exchange with the environment increases, order and organization increase, evolutionary

complexity increases, and self-regulation and adaptability to change emerge. The system stores and creates information forming a non-equilibrium steady state.

6. Information, contained in the redundancy of sequences of communicative behaviors, serves to organize and help define the system. Information is in patterns or sequences of behavioral states; how decisions are negotiated is found within patterns of interaction.

7. "A group is a hierarchical level defined (i.e., explained) by the collective structure of members' (i.e., subsystems) communicative behaviors, and achieves its significance (i.e., meaning) in its relationship with the immediately environing suprasystem" from which any level of entry for analysis may be chosen.

8. "Organized complexity characterizes group communication so that the complex interaction patterns are discernible as redundant sequences of communicative acts which recur at some level of probability," the objectivity of pattern identification relying on the fact that several simultaneous observations yield the same result.

Criteria for Categories

The procedures of analysis tied to traditional category systems are inadequate to tap into the processes of decision-making behaviors. While these category systems do provide insight into the possible structuring influences of utterances, they are unable to account for either situational or contextual influences upon process. As Garfinkel [30] has cogently argued, category systems traditionally neglect what those categories mean or could mean to subjects' perceptions of their actions and reactions. When such category systems are coupled with the utilization of statistical tests which presuppose dichotomous properties of interaction categories, it becomes clear that this theoretical groundwork is not flexible enough to break away from rigid assumptions, about the independence of interaction sequences, to deal with the interdependent dynamics of group existence.

There is a clear need to put into practice that which is

theoretically acknowledged by scholars in the field, that interactive utterances are interrelated, interdependent, and need to be treated as such during the analysis of decision-making. Coding systems must incorporate these concepts if they are to reveal significant characteristics of communication processes which add to our knowledge of how groups function. In order to accomplish this end, it is necessary to develop categories reflective of this interdependence. Such categories' functions may slightly overlap and be nondichotomous in nature due to their reflection of interdependent interaction. This argument against invariant discreteness of categories is not without suppert. Blumer [31] argues that:

> "In variable analysis one is likely to accept the two variables as the simple and unitary items that they seem to be, and to believe that the relation found between them is a realistic analysis . . . Actually . . . the relation is far more likely to be between complex, diversified and moving bodies of activity. The operation of one of these complexities on the other, or the interaction between them, is both concealed and misrepresented by the statement of the relation between two variables. The statement of the variable relation merely asserts a connection between abbreviated terms of reference. It leaves out the actual processes of interaction in which human group life has its being. We are here faced . . . by the fact that the very features which give variable analysis its high merit--the qualitative consistency of the variables, their clean-cut simplicity, their case of manipulation as a sort of free counter, their ability to be brought into decisive relation--are the features that lead variable analysis to gloss over the character of the real operating factors in group life, and real interaction and relations between such factors." (p. 74)

Delia [32] also supports this view of interdependence and the qualitative significance of utterances. In his discussion of constructivism, he argues that:

> "the most direct avenue to the study of communication processes not doing violence to the phenomological perspectives of study participants and to the preinterpreted quality of the social world lies in the use of data collection procedures themselves . . .

> (and) methods yielding data preserving the structure imposed by the participants themselves." (p. 78)

This approach, which preserves the naturalness of the data, also preserves the significance of the data when applied to its analysis. Searle [33] argued this point well; he claimed "the meaning of a sentence does not in all cases uniquely determine what speech act is performed in a given utterance of that sentence." These arguments tell us that categorization of utterances which ignore meaning, situation, context, and interdependence ignore and predetermine the range of possible utterance functions generated within the group. To artificially limit this range of functions, by imposing discrete categories onto data, denies the very nature of decision-making utterances' interrelatedness which I seek to describe.

Critics of this type of approach argue that there is no reliable way in which to analyze or interpret the interrelatedness of utterances without freeing interaction from its specific "defining" characteristics. I would argue that it has been illustrated that our membership and active participation in speech communities is that property, that characteristic about the use of language, which allows us as observers to accurately categorize and interpret thematic development of decision-making in everyday life. In this manner, observed and observer similarly make sense of that which they see and hear during decision-making. From the preceding arguments, the following criteria for categories are proposed:

1. categories need to focus on organization (i.e., the relationship of individuals), where the social processing of information focuses on functional accomplishments of information at sequences of group system in operation.

2. categories must reflect content (within specified situation and context) in order to discover functions of communication reflective of group processes.

3. the system of analysis must focus on the functions of information, since information is the central organizing element of a social system and communication is how constitutive elements organize into a system. Categories attempt to uncover how the information in utterances and sequences structure decisions within the system.

4. categories must reflect a process orientation, revealing implicit and explicit time parameters within which ongoing sequences or chains of interaction may be analyzed through interpretation of conversational thematic sequencing and time relationships.

In the DPM, coded utterances identify themes of negotiated agreement within the conversation and visually display the accumulation of series of agreements, sequence three-type decision-episodes, and eventual decision proposal emergence. This is accomplished by the system's ability to indicate which utterances have or have not been acceptable to groups or individuals as data, or hypothesized relationships among data, upon which decision proposals could be based. The DPM allows the researcher to deal with decision-making on many levels, the first of which is an observation of when interacts constitute agreement points. A second level of analysis allows evaluation of interact functions in assessing how those data (thematic interacts) are subsequently used in 1) formulating decison proposals and 2) treating decision proposals in the same manner as group members have treated them. The evaluation of these two levels permits the observer to answer questions on the nature of accomplishing decision-making through utterances' functionality.

The DPM accomplishes its purpose by focusing on what language in-use accomplishes. The coding system is designed to adapt to the interaction generated by any group. As such, it is capable of accurately reflecting the functions of utterances during group talk. The final form of the DPM employed in a study should be presented to coders with examples as to how the system is to be used. A

minimum of three coders should be utilized in analyzing transcripts of group interaction. An 80% level of inter-coder agreement should be attained and, due to the thematic nature of the coding system, coding sessions should be at least one hour in length to assure continuity in evaluation. This permits coder involvement with the evolutionary development of decision-proposals and modifications, thus allowing coders to more accurately penetrate into members' possible contextual assignments of meaning to utterances.

A reliability test of the DPM is more complex than testing the reliability of traditional coding systems. Again, this is due to the thematic and interdependent thrust of categories. The DPM seeks the identification of themes, decision-proposals, proposal-modifications, and traces their evolution into decisions within a specified period of observation. Because the system describes interrelated functions of utterances, categories represent actions which have meaning and significance due to their multiple functions during group talk.

The reliability of such a system becomes an issue of whether coders can, within reason, interpret and code interaction similarly. In terms of internal reliability, one must ask whether the categories accurately reflect the functions of the interaction they seek to represent. As with all coding systems, reliability is a question of comprehension and interpretation of interaction by competent speakers and hearers of language and speech communities. Since the DPM evolves from the interaction it seeks to code, it will be up to coders to interpret how DPM items accurately reflect utterance functions and the significance of those utterances.

Inter-coder reliability is another area of concern. One problem

is achieving a level of reliability over .80 is coders' ability to classify decision proposals and modifications differently, and still interpret and make sense of the coded utterances in a manner similar to the final interpretation of other coders. To lessen the impact of this type of error, coders could meet and a recording will be made of their discussion on how and why they coded utterances as they did. Admittedly, variances in interpretation and coding are a weakness in the DPM system. However, these types of variances are characteristic of language use. That is, the use of the same or similar symbols may result in these symbols being classified differently while still holding similar meanings for a variety of people. This degree of ambiguity is an acceptable risk for this type of descriptive study.

In conjunction with coders interpretations, Holsti's [34] test of inter-coder reliability will provide the evaluative criteria from which to judge the coding of transcripts. Once inter-coder reliability has been established, further analyses of data may be performed.

The coding system (see Appendix A), differing from traditional systems because of its focus on thematic development of decision proposals and their modification to the analysis of utterances' interrelatedness follows. The Decision-Proposal and Modification Coding System is a refinement of systems employed by Scheidel and Crowell and Fisher. The unit of analysis is the utterance, defined herein as a comprehensible and functionally identifiable thought unit. All utterances are treated as contributory to decision-making, as they offer a means by which relationships among utterances, formulating decisions over time, may be analyzed.

APPENDIX A

The Decision-Proposal & Modification Coding System

Only one of the following categories may be chosen for any given utterance

Code	Definition
3_n = agreement	provides data (information) directly supporting immediately preceeding utterance; "n" indicates line of argument/data base in use
or	
4_n = verbal disagreement	provides data (information) contrary to immediately succeeding utterance; "n" indicates data under discussion
or	
5_n = agreement-substantiation	provides data/argument supporting any preceeding theme or line of argument as indicated by "n" (concerns relationships among data-themes)
or	
6_n = disagreement-dissubstantiation	provides data/argument contrary to any preceeding theme or line of argument indicated by "n" (concerns relationships among data)

The following categories are to be employed in conjunction with those above. In addition, multiple uses of categories below may occur where dictated by utterances' functions.

DP_n = decision-proposal	introduction of a decision-proposal - the possible solution to task is specified by "n"
$M_n n$ = modification	Introduction of decision-proposal in altered form. Sub "n" indicates original decision-proposal, later reintroduction of this modification coded $RM_n n$; the second "n" indicates the particular modification introduced.
$F_n n$ = favorable toward decision-proposal	supportive feedback concerning a specific decision-proposal and possible modification as indicated by n^n
$U_n n$ = unfavorable toward decision-proposal	negative feedback concerning a specific decision-proposal or its modification as indicated by n^n
$R_n n$ = reintroduction	specific reintroduction/repetition at a later point in time, of a decision-proposal or its modification as indicated by n^n
A_n = adoption	adoption of decision-proposal "n" indicates a finalized form of the proposal

Code	Definition
s= summary	summarizes thematic arguments, and/or positions of individuals or group of people at a particular point in time
I_n = information	providing of "neutral" data/information for group use; not specifically tied to a decision-proposal but tied to a specific task/theme under discussion as indicated by "n"
Q= question	direct seeking of information or clarification
a= ambiguous	refers to unintelligible or "nonsense" utterances within the text
VA= verbal/nonverbal agreement	indicates nonverbal agreement with topical focus; "n" indicates thematic focus of this agreement-point
VD= verbal/nonverbal disagreement	indicates nonverbal disagreement with a topical focus, "n" indicates thematic focus of this agreement-point
H + initial of speaker	indicates positive head nod behavior
Z + initial of speaker	indicates positive head nod behavior

A sampling of other categories which, while not applicable to this study, could be utilized is as follows:

Code	Definition
tr/rep= transition/ repetition	transition of topics/repetition of words/phrases
H= humor	statement perceived & evaluated by coders as humorous within the context of interaction
P_n = procedural	indicates procedural/strategic changes in the way information is processed.

ABBREVIATED FOOTNOTES

1. Bales, R. & Strodtbeck, F. "Phases in Group Problem-Solving."
2. Crowell, L. & Scheidel, T. "Categories for Analysis of Idea Development in Discussion Groups."
3. Scheidel & Crowell, L. "Idea Development in Small Discussion Groups."
4. Fisher, B.A. "The Process of Decision Modification in Small Discussion Groups."
5. "Decision Emergence: Phases in Group Decision-Making."
6. & Hawes, L. "An Interact Systems Model: Generating a Grounded Theory of Small Groups."
7. Ellis & Fisher, "Phases of Conflict in Small Group Development: A Markov Analysis."
8. Fisher; Drecksel; Lloyd; & Werbel, "Social Information Processing Analysis: Coding Ongoing Human Communication."
9. Ibid. pp. 16.
10. Natensen, M. (ed) in Schutz, A. Collected Papers, pp. xxxvi.
11. Blumer, H. Symbolic Interactionism, pp. 17-18.
12. Thomas, in Blumer, Ibid.
13. Schutz, A. Collected Papers: Volume I.
14. Ibid.
15. Natensen, M. in Schutz Collected Papers: Volume I, pp. xxxvi.
16. Ibid. pp. xxxvii.
17. Blumer, H. in The Quarterly Journal of Speech.
18. Schutz, A. Collected Papers: Volume I.
19. Garfinkel, H. Studies in Ethnomethodology, 1967.
20. Hall, E. Beyond Culture.
21. Hawes, L. "Organization as Communicatively Constituted."
22. Searle, Speech Acts: An Essay in the Philosophy of Language.
23. Austin, How to do Things with Words.
24. Schutz, A. Collected Papers: Volume I, pp. xxxviii.

25. Hawes, L. & Smith, D. "Communication and Conflict."

26. See Pollner, M. "A Puzzel Approach to Problem Solving."
Garfinkel, H. "Suicude for All Practical Purposes" in Turner.
Sudnow, D. "On Death and Dying" in Turner (ed.) Ethnomethodology.
Hawes, L. "How Writing is Used in Talk: A Study of Communication Logic-in-Use."
for a number of studies which treat decision-making and group interaction as a negotiable item of talk-in-use within specified situational and contextual boundaries.

27. Schutz, A. Collected Papers: Volume I.

28. Fisher, A. "Decision Emergence."

29. Fisher; Drecksel; Lloyd; & Werbel, "SIPA: Coding Ongoing Human Communication."

30. Garfinkel, H. in Gumperz & Hymes, Directions in Sociolinguistics.

31. Blumer, H. The Quarterly Journal of Speech.

32. Delia, "Towards a Theory of Constructivism."

33. Searle, Speech Acts, pp. 17.

34. Holsti, in North et al. Content Analysis: A Handbook with Applications.